AMENDMENTS TO THE CLAIMS

Listing of the Claims:

The listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A method of affecting chronic pain in a patient in need thereof comprising:

implanting a stimulator in a target site of the brain of a patient with chronic pain;

~~exposing the patient to a first painful sensation;~~

~~measuring~~ determining the patient's threshold for pain at a first time ~~during the first painful sensation~~;

then ~~administering~~ providing a stimulation signal to the stimulator to stimulate the target site;

~~exposing the patient to a second painful sensation;~~

~~re-measuring~~ determining the patient's threshold for pain at a second time ~~during the second painful sensation and during administration of the stimulation signal~~; and

adjusting the stimulation signal if necessary in response to the determination ~~re-measurement~~ of the patient's threshold for pain at the second time in order to affect the chronic pain,

wherein the target site is selected from the group consisting of the pre-frontal cortex, orbitofrontal cortex, anterior limb of the internal capsule, insular cortex, secondary somatosensory cortex, cingulate cortex, anterior cingulate cortex, posterior cingulate cortex, inferior frontal gyrus, middle frontal gyrus, superior frontal gyrus, medial frontal gyrus, parahippocampal gyrus, precuneus, amygdala, and hippocampus.

2. (Original) The method of claim 1, wherein the target site is the pre-frontal cortex.

3. (Original) The method of claim 1, wherein the target site is the orbitofrontal cortex.

4. (Original) The method of claim 1, wherein the target site is the anterior limb of the internal capsule.

5. (Original) The method of claim 1, wherein the target site is the insular cortex.

6. (Cancelled)

7. (Previously Presented) The method of claim 1, wherein the target site is the secondary somatosensory cortex.

8. (Original) The method of claim 1, wherein the target site is the cingulate cortex.

9. (Original) The method of claim 1, wherein the target site is the anterior cingulate cortex.

10. (Original) The method of claim 1, wherein the target site is the posterior cingulate cortex.

11. (Original) The method of claim 1, wherein the target site is the inferior frontal gyrus.

12. (Original) The method of claim 1, wherein the target site is the middle frontal gyrus.

13. (Original) The method of claim 1, wherein the target site is the superior frontal gyrus.

14. (Original) The method of claim 1, wherein the target site is the medial frontal gyrus.

15. (Original) The method of claim 1, wherein the target site is the parahippocampal gyrus.

16. (Original) The method of claim 1, wherein the target site is the precuneus.

17. (Original) The method of claim 1, wherein the target site is the amygdala.

18. (Original) The method of claim 1, wherein the target site is the hippocampus.

19. (Currently Amended) A method of affecting chronic pain in a patient in need thereof comprising:

implanting a stimulator in a target site of the brain of a patient with chronic pain;

~~exposing the patient to a first painful sensation;~~

~~measuring~~ determining the patient's threshold for pain at a first time ~~during the first painful sensation~~;

then ~~administering~~ providing a stimulation signal to the stimulator to stimulate the target site;

~~exposing the patient to a second painful sensation;~~

~~re-measuring~~ determining the patient's threshold for pain at a second time ~~during the second painful sensation and during administration of the stimulation signal~~; and

adjusting the stimulation signal if necessary in response to the ~~re-measurement~~ determination of the patient's threshold for pain at the second time in order to affect the chronic pain,

wherein the target site is selected from the group consisting the anterior nucleus of the thalamus, mammillary body, lateral hypothalamus, locus coeruleus, dorsal raphe nucleus, substantia nigra pars compacta, substantia nigral pars reticulata, superior colliculus, tegmentum, ventral tegmentum, tectum, medial thalamus, nucleus accumbens, ventral striatum, and ventral pallidum.

20. (Original) The method of claim 19, wherein the target site is the anterior nucleus of the thalamus.

21-22. (Cancelled)

23. (Original) The method of claim 19, wherein the target site is the mammillary body.

24. (Original) The method of claim 19, wherein the target site is the lateral hypothalamus.

25. (Original) The method of claim 19, wherein the target site is the locus coeruleus.

26. (Original) The method of claim 19, wherein the target site is the dorsal raphe nucleus.

27. (Original) The method of claim 19, wherein the target site is the substantia nigra pars compacta.

28. (Original) The method of claim 19, wherein the target site is the substantia nigra pars reticulata

29. (Original) The method of claim 19, wherein the target site is the superior colliculus.

30. (Original) The method of claim 19, wherein the target site is the tegmentum.

31. (Original) The method of claim 19, wherein the target site is the ventral tegmentum.

32. (Original) The method of claim 19, wherein the target site is the tectum.

33. (Previously Presented) The method of claim 19, wherein the target site is the medial thalamus.

34. (Original) The method of claim 19, wherein the target site is the nucleus accumbens.

35. (Original) The method of claim 19, wherein the target site is the ventral striatum.

36. (Original) The method of claim 19, wherein the target site is the ventral pallidum

37. (Withdrawn) A method of affecting chronic pain in a patient in need thereof comprising:

a) implanting a stimulator in communication with a pain circuitry target site; and

b) providing a stimulation signal to the stimulator to stimulate the synthesis or release of an endogenous opioid to affect chronic pain in the patient.

38-40. (Cancelled)

41. (Withdrawn) The method of claim 37, wherein the stimulator is implanted in a pain circuitry target site selected from the group consisting of the pre-frontal cortex, orbitofrontal cortex, anterior limb of the internal capsule, insular cortex, primary somatosensory cortex, secondary somatosensory cortex, cingulate cortex, anterior cingulate cortex, posterior cingulate cortex, inferior frontal gyrus, middle frontal gyrus, superior frontal gyrus, medial frontal gyrus, parahippocampal gyrus, precuneus, amygdala, and hippocampus.

42. (Withdrawn) The method of claim 37, wherein the stimulator is implanted in a pain circuitry target site selected from the group consisting of the anterior nucleus of the thalamus, intralaminar thalamic nuclei, dorsomedial nucleus of the thalamus, mammillary body, lateral hypothalamus, locus coeruleus, dorsal raphe nucleus, substantia nigra pars compacta, substantia nigral pars reticulata, superior colliculus, tegmentum, ventral tegmentum, tectum, medial thalamus, nucleus accumbens, ventral striatum, and ventral pallidum.

43-46. (Cancelled)

47. (Currently Amended) The method of claim 1, wherein ~~the first painful sensation and/or second painful sensation is~~ determining the patient's threshold for pain at the first and/or second time comprises a tactile sensation.

48. (Currently Amended) The method of claim 1, wherein ~~the first painful sensation and/or the second painful sensation is~~ determining the patient's threshold for pain at the first and/or second time comprises a noxious sensation.

49. (Currently Amended) The method of claim 1, wherein ~~the first painful sensation and/or second painful sensation is~~ determining the patient's threshold for pain at the first and/or second time comprises an increase or decrease in temperature.

50. (Currently Amended) The method of claim 19, wherein ~~the first painful sensation and/or second painful sensation is~~ determining the patient's threshold for pain at the first and/or second time comprises a tactile sensation.

51. (Currently Amended) The method of claim 19, wherein ~~the first painful sensation and/or the second painful sensation is~~ determining the patient's threshold for pain at the first and/or second time comprises a noxious sensation.

52. (Currently Amended) The method of claim 19, wherein ~~the first painful sensation and/or second painful sensation is~~ determining the patient's threshold for pain at the first and/or second time comprises an increase or decrease in temperature.